Video Conferencing: Overview of the Basics

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Basic Definition and Equipment Needs

Until the mid-90's, hardware costs for video-conferencing were prohibitively expensive for most organizations. That situation is changing rapidly. Many analysts believe that video-conferencing will be one of the fastest-growing segments of the computer industry in the near future. For legal services, video-conferencing has meant an increase in representation of rural clients, an increase in brief services (clinics and assisted pro se services) to clients in remote areas, improved management within programs, and an increase in partnerships with courts and other social service agencies.

Video-conferencing allows two or more participants to communicate from different locations by using computer networks to transmit both audio and video data. A point-to-point (two-person) video conferencing system works much like a video telephone. Multipoint video-conferencing allows three or more participants to sit in a virtual conference room and communicate as if they were sitting right next to each other. Each participant/office has a video camera, microphone, and speakers mounted on the designated computer. As participants speak to one another, their voices and visual image are carried over the network and delivered to the participant's speakers and monitor.

This biggest factor for successful high quality video-conferencing is speed. Whatever transport technology you use you will need at least 320 - 384 k of bandwidth for each session. This will ensure a smooth quality picture and no loss of audio. In other words, some systems can be compared to a Godzilla movie or spaghetti western where the audio and video are out of sync. Severe packet loss can occur at lower speeds and can be very frustrating to the user. The minimum for most projects is 15 frames per second. If you keep those two factors as minimum requirements you will stand a excellent chance of successful utilization on a consistent basis.

Transport Technologies

There are two prevalent type of transport technologies used to facilitate Video Conferencing. The first is called IP and the second is ISDN. A third is emerging and is called ATM. Most telecom companies offer all three solutions. Which one is best? It depends on your budget and your intended use for the video-conferencing. All three work on a functional level, however the biggest difference among them is cost.

<u>IP</u>

The IP transport mechanism is used mainly over private networks and the Internet. T1's, Frame Relay and ADSL circuits are very popular when using this transport type, and can provide the speed necessary for mission critical applications. IP over T1's, Frame Relay and ADSL comes with a fixed monthly cost, and is easier to manage from a technical standpoint. The monthly recurring cost is better suited for fixed budget situations. There is no additional charge for usage -- you pay the same no matter how much you use it. IP is an excellent solution for medium to high utilization projects that will be communicating over your own network or compatible systems connected to the Internet.

ISDN

ISDN is a digital dial-up type system and is popular with applications where you need to communicate with organizations and equipment outside of your organization or network. The biggest factor in deciding to use ISDN is utilization. ISDN comes with a small monthly recurring charge, and you pay by the minute as you are conferencing. If you are on fixed budget, you may run out of funds before you accomplish your goals. ISDN is an excellent solution for low to medium utilization projects and/or for projects that require communication with a variety of organizations outside of your network design.

ATM (Asynchronous Transport Mode)

ATM is becoming more popular, but is still cost prohibitive in many cases. ATM is another fixed monthly cost technology that is best suited for very high utilization with a large number of connected sites.